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(72)Inventor : FREDERICK ROGER A

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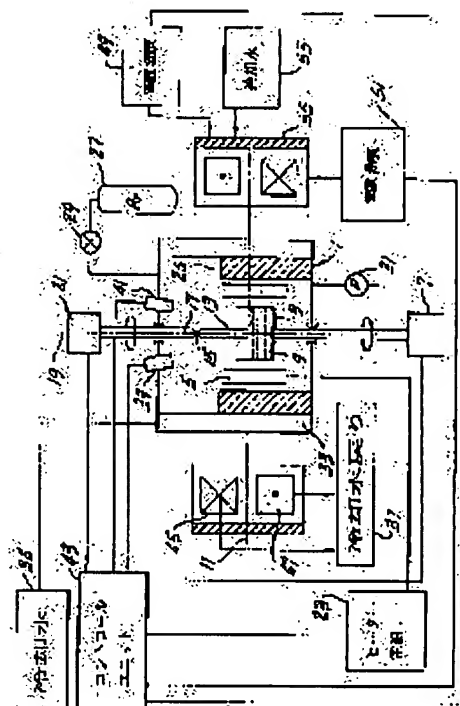
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(54) PRODUCTION OF SINGLE CRYSTAL SILICON ROD

(57)Abstract:

PURPOSE: To produce a single crystal Si with a large diameter whose oxygen density and distribution are freely adjusted by combining and adjusting a change in a cusped magnetic field in a molten raw material and the number of revolutions of a molten raw material crucible and a seed single crystal silicon in the case of pulling the seed single crystal silicon from a polycrystal silicon melt to grow the silicon rod.

CONSTITUTION: A polycrystal Si is placed into a crucible 3 and heated by a heater 5 and the Si is molten (9). A seed single crystal silicon 15 is immersed in a polycrystal silicon melt 9, the seed single crystal 15 is pulled up slowly by rotating a cable 17 for the seed crystal Si 15 in opposite directions to the crucible 3 at a speed faster by 5 r.p.m. and a single crystal silicon rod 13 is grown at the tip. In this case, a current controlled by a control unit 43 is supplied to an upper solenoid coil 45 and a lower solenoid coil 47 provided to the outside of a device 1 from respective power supplies 49, 51 to generate a cusped magnetic field at a surface



position 11 of the molten melt 9. The single crystal rod 13 with a diameter as large as 200 mm is obtained where an O2 density and its distribution state are adjusted by adjusting the number of revolutions of the Si seed single crystal 15 and the crucible 3 and the intensity of the cusped magnetic field.

LEGAL STATUS

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